71. Tullah STP

71.1 Activity and report details

Activity name	Tullah STP		
Activity address	Ardyn St, Tullah		
Permit number	Licence to Operate - 3638	**Date of issue**	1/03/1989
EPN	8089/1	**Date of issue**	13/05/2011
Treatment level	Secondary Treatment		
Authorised dry weather flows	243 kL/day		
Key influent source	Residential		
Contact person	Kate Westgate (Manager Environmental Performance)		
Report author	Jake Crisp (Environmental Scientist)		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2024		

Figure 71-1: Tullah Sewage Treatment Plant

71.2 Monitoring and compliance summary

71.2.1 Flow data

Table 71-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location name	Plant Influent	Lake Rosebery	No reuse scheme
Coordinates	E 384880 N 5378891	E 384751 N 5378941	NA
Method of measurement	In line meter	In line meter	NA
Date of last calibration/validation (if applicable).	18/03/2024	December 2021	NA

Table 71-B: Annual flow and rainfall data

Month	Average daily influent volume (kL/day)	Rainfall (mm/month) BOM Station ID 97093	Discharge to waters total effluent volume (ML)	Discharge to reuse total effluent volume (ML)
July 2023	239	308.6	12.29	--
August 2023	169	229.4	7.10	--
September 2023	136	169.4	5.00	--
October 2023	72	187.0	2.76	--
November 2023	69	57.4	0.88	--
December 2023	61	99.6	0.83	--
January 2024	92	163.0	2.46	--
February 2024	61	43.2	0.70	--
March 2024	58	84.6	1.12	--
April 2024	77	151.0	2.44	--
May 2024	77	89.6	2.25	--
June 2024	107	140.6	4.22	--
Annual 2023-24	102	1723.4	42.07	--
% of total discharge	--	--	100.0%	--

2023-24 monthly flow data was submitted directly to the EPA.

71.3 Bypass events

There were no bypass events associated with the STP during the reporting period.

71.4 Discharge compliance with permit limits

Table 71-C: Compliance summary

Parameter	Ammonia	BOD5	Chlorine	Nitrogen	Oil and grease	pH	Phosphorous	E coli	Total suspended solids
Permit/EPN limit	mg/L	mg/L	mg/L	mg/L	mg/L	Units	mg/L	MPN/100mL	mg/L
Maximum	--	40	--	30.0	10.0	8.5	10.0	2000	50.0
90th percentile	--	--	--	--	--	--	--	--	--
50th percentile	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	12	12	--	12	12	12	12	12	12
Number analysed	12	12	--	12	12	12	12	12	12
Statistical summary									
Maximum	6.5	43	--	12.8	2.6	9.7	4.6	426	59.0
90th percentile	5.5	37	--	11.6	1.5	9.5	4.3	284	50.1
50th percentile	4.0	20	--	8.3	1.0	7.5	3.6	26	26.8
Minimum	0.1	5	--	4.1	1.0	6.6	1.6	10	10.5
EPN limit compliance									
% compliance with maximum	--	92%	--	100%	100%	--	100%	100%	83%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--
% compliance with pH range	--	--	--	--	--	75%	--	--	--

Note: Percentages reflective of complete data set for the year.

Table 71-D: Mass loads to the environment

Parameter	EPN limit	Frequency	2023-24 result
Nitrogen (kg)	--	Annual	399.8
Phosphorous (kg)	--	Annual	111.1
Method	Time weighted/grab sample method		

Table 71-E: Performance analysis (discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
pH	3/01/2024 5/02/2024 6/05/2024	High algae levels have likely contributed to increased pH, TSS and BOD. Through photosynthesis, algae absorb carbon dioxide and release oxygen, which raises the pH. High algal counts also increase the total biomass which can contribute to elevated TSS levels, as their cellular debris become suspended in the water. When algae decompose, their decomposition process consumes oxygen, which can result in higher BOD levels.	No specific actions
TSS	3/01/2024 4/04/2024		
BOD	5/09/2023		

No other parameters had exceedances in the reporting period.

71.5 Reuse annual reporting

No Recycled Water Scheme associated with this STP.

71.6 Ambient monitoring program

Table 71-F: Program details

Program	Tullah Post New Outfall Commissioning - Ambient Monitoring Plan.
Status	Ambient monitoring was not conducted during the reporting period.
Update	An Ambient Monitoring Report was submitted during the reporting period that included the outcomes of plume dilution studies, ambient water quality and biological monitoring investigations undertaken within FY2022-23 around the new outfall and within the Lake Rosebery receiving environment.
Comments	A summary of the outcomes of the ambient monitoring investigations within the Lake Rosebery receiving environment is provided below: • The plume dilution studies established that the effluent plume was highly localised to the outfall location, with sufficient mixing achieved within 20 m of the new outfall. Effluent diluted rapidly within the receiving environment, with a high dilution within 10 m of the outfall with complete dilution of the plume was achieved within 20 m of the outfall location. • Results of the water quality sampling program showed minimal impact of the Tullah STP effluent discharge on the receiving environment. Physico-chemical parameters including temperature, conductivity, dissolved oxygen, pH, and turbidity showed no evidence of an impact from the Tullah STP effluent discharge. No spatial patterns in nutrient concentrations (including ammonia, nitrate, nitrite, total nitrogen, phosphorus and dissolved reactive phosphorus) were observed surrounding the outfall over the 12-month monitoring period • Elevations of pathogens (enterococci and E. coli) were observed in the vicinity of the outfall site during the monitoring program and in the embayment close to the former Tullah STP effluent discharge location. However, there was variation in pathogen concentration generally in Lake Rosebery, evident at the reference sites. These results suggest that other pathogen inputs into Lake Rosebery exist, and it is unlikely that the STP effluent discharge is causing an elevation in pathogens in the Lake Rosebery receiving environment. • Detection of algae, including potentially toxin-producing blue-green algae (BGA), in Lake Rosebery receiving waters in the vicinity of the Tullah STP outfall correlated with observed algal growth in the STP lagoons, although receiving environment concentrations for both algae and potential toxin-producing BGA were very low with all levels reported below the EPA's low alert surveillance level for all water uses. Overall, the new STP outfall appears to achieve sufficient mixing and dilution of the effluent plume. Minimal impacts from the effluent discharge were observed on the receiving environment and it is considered that the STP effluent discharge poses a low risk to Protected Environmental Values (PEVs) in the Lake Rosebery receiving environment with no impacts to PEVs observed during the monitoring program.

71.7 Groundwater monitoring

Site status: Green

Tullah groundwater monitoring network consists of four monitoring bores, ID numbers TUGW1 and 2 and TUGW4 and 5. Bore ID' TUGW4 and 5 are located on the south-western corner of Lagoon 2 with bore ID TUGW2 located on the northern western corner. All three bores are located between the STP and Huetts Bay. Bore ID TUGW1 is located to the east of the STP. One round of sampling was completed at bore ID's

TUGW1-2 and TUGW4 in March 2024. No sample was collected at bore ID TUGW5 due the bore being dry. The planned second round of sampling (annual) of the four bores and surface water of the STP lagoons was not completed. TasWater has put measures in place for the 2024-25 sampling program to address the scheduling and resourcing delays that impacted the reduced sampling frequency.

The 2023-24 groundwater monitoring report downgraded the site status of Tullah STP from potential to limited STP impact. The Report recorded minor exceedances of adopted guideline values of pH and total phosphorous at bores ID's TUGW1 and TUGW4 but no clear signs of STP impact. Bore ID TUGW2 continued to show no signs of STP impact. Monitoring across the network is recommended to be reduced to annually and at the standard analytical suite.

6-monthly sampling at the extended analytical suite is schedule to continue at all four bores during the 2024-25 groundwater monitoring program. Annual sampling at the extended analytical suite is also scheduled for the STP lagoons for further water classification assessment as per 2022-23 report recommendation.

71.8 Inflow and infiltration (I&I)

The latest revision to the TasWater Inflow and Infiltration Management Plan includes details of the actions undertaken statewide to address I&I issues. Update to the actions completed will be provided in the next revision due September 2024.

A Multi Criteria Assessment was undertaken by TasWater in 2024 to prioritise I&I investigation and works state-wide. This catchment was ranked 74 out of 108 in priority.

71.9 Sludge and biosolids

The latest revision to the Sewage Sludge Management Plan (SSMP) includes full details of the actions undertaken during the reporting period, the most recent sludge profiling results, and upcoming annual desludging program.

This STP was fully compliant with the 2023-24 SSMP.

No stockpiling occurs at this site.

Table 71-G: Desludging status and comments

Desludging status	Comments
Low Priority	Desludging is outside of the current prioritisation planning schedule.

71.10 Non-compliance with other permit requirements

Table 71-H: EPN non-compliances

EPN condition	Description of non-conformance	Future actions to be taken
EF2 Effluent quality limits for discharge to water	Discharge compliance with permit limits.	See section 71.4 Discharge compliance with permit limits and Performance Analysis.

EPN condition	Description of non-conformance	Future actions to be taken
M4 Flow Monitoring Equipment	The effluent flow meter was commissioned in late 2021 but was not added to the annual preventative maintenance flow meter verification schedule; hence, the last verification of December 2021.	TasWater has added the effluent flow meter to the preventative maintenance schedule for verification around March 2025.

71.11 Complaints and incident reporting

Table 71-I: Complaints reporting

Date	Category	Details	Mitigation actions
26 June 2024	Sewer blockage	Concerns regarding a blockage in customer connection point to sewerage network.	Cleared the tree root blockage and organised CCTV inspection. Customer informed of outcome of investigation 19/07/2024.

No incidents reported during the FY2023-24 reporting period.

71.12 Any other relevant information

For further information on Tullah STP please contact TasWater on 13 6992

www.taswater.com.au